CLAIMS

What is claimed is:

1. A retro-inverted peptide or a derivative thereof that specifically binds to a gastro-intestinal tract receptor selected from the group consisting of HPT1, hPEPT1, D2H, and hSI.

2. The retro-inverted peptide of claim 1 in which the peptide comprises an amino acid sequence selected from the group consisting of ZElan144, ZElan145 or ZElan 146 or a binding portion thereof.

3. A retro-inverted peptide that enhances delivery of an active agent across the gastro-intestinal tract into the systemic, portal or hepatic circulation.

4. The peptide of claim 1, wherein the peptide comprises no more than 50 amino acid residues.

5. The peptide of claim 1, wherein the peptide comprises no more than 40 amino acid residues.

6. The peptide of claim 1, wherein the peptide comprises no more than 30 amino acid residues.

7. The peptide of claim 1, wherein the peptide comprises no more than 20 amino acid residues.

8. A composition comprising the peptide of claim 1 bound to a material comprising an active agent, said active agent being of value in the treatment of a mammalian disease or disorder.

9. The composition of claim 8 in which the active agent is a drug.

10. The composition of claim 8 in which the material is a particle containing the active agent.

11. The composition of claim 8 in which the material is a slow-release device containing the drug.

12. The composition of claim 8 in which the peptide is covalently or noncovalently bound to the material.

13. A composition comprising a chimeric protein bound to a material comprising an active agent, in which the chimeric protein comprises a sequence selected from the group consisting ZElan144, ZElan145 or ZElan 146 or a binding portion thereof fused via a covalent bond to an amino acid sequence of a second protein, in which the active agent is of value in the treatment of a mammalian disease or disorder.

14. A composition comprising the peptide of claim 1 non-covalently bound to a particle containing a drug.

15. A composition comprising the peptide of claim 1 covalently bound to a drug.

16. The composition of claim 8 which facilitates the transport of the active agent through human or animal gastro-intestinal tissue.

17. The composition of claim 8 which targets the active agent to a selected site or selected tissue in a human or animal.

18. A method of delivering an active agent *in vivo* comprising administering to a subject a purified composition of claim 8.

19. A method of delivering a drug to a subject comprising administering to the subject a purified composition of claim 14.

20. A method of delivering a drug to a subject comprising administering to the subject a purified composition of claim 15.

21. The method according to claim 18 in which the administering is oral.

22. The method according to claim 18 in which the active agent is a drug.

23. The method according to claim 18 in which the subject is a human.

24. The method according to claim 21 in which the subject is a human.

25. The method according to claim 18 in which said composition facilitates the transport of the active agent through human or animal gastro-intestinal tissue.

26. The method according to claim 19 in which the administering is oral.

27. A pharmaceutical composition comprising the composition of claim 8 in a pharmaceutically acceptable carrier suitable for use in humans *in vivo*.

28. An antibody which is capable of immunospecifically binding the peptide of claim 1.

29. A molecule comprising a fragment of the antibody of claim 28, which fragment is capable of immunospecifically binding said peptide.

30. A purified derivative of the peptide of claim 1, which displays one or more functional activities of said peptide.

31. The derivative of claim 30 which is able to be bound by an antibody directed against said peptide.

32. A fragment of the peptide of claim 2 comprising a domain of said peptide.

33. A fragment of the peptide of claim 3 comprising a domain of said peptide.

34. A pharmaceutical composition comprising a therapeutically effective amount of a composition comprising the peptide of claim 1 and a pharmaceutically acceptable carrier.

35. A method of treating or preventing a disease or disorder comprising administering to a subject in which such treatment or prevention is desired a therapeutically effective amount of the composition of claim 8.

36. A method of treating or preventing a disease or disorder comprising administering to a subject in which such treatment or prevention is desired a therapeutically effective amount of the composition of claim 14.

37. A method of treating or preventing a disease or disorder comprising administering to a subject in which such treatment or prevention is desired a therapeutically effective amount of the composition of claim 15.

38. The method according to claim 35 in which the disease or disorder is selected from the group consisting of: hypertension, diabetes, osteoporosis, hemophilia, anemia, cancer, migraines, and angina pectoris.

39. The method according to claim 38 in which the subject is a human.

40. A composition comprising the peptide of claim 1, wherein the peptide is coated onto or absorbed onto or covalently bonded to the surface of a nano- or microparticle.

41. A nano- or microparticle formed from the peptide of claim 1.

42. The composition of claim 40, wherein the nano- or microparticle is a drug-loaded or drug-encapsulating nano- or microparticle.

43. The composition of claim 8 in which the drug is insulin or leuprolide.

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add a1